



FACT SHEET

Pasadena Freeway (SR-110) Dynamic Lane



Background:

Current population and traffic growth was not envisioned in 1940, when the one lane northbound SR-110 connector to the northbound Golden State Freeway (I-5) was built. As motorists approach the tunnel connecting to one of the state's most vital routes, a long traffic queue develops in the connector lane during peak hours. The long queue causes many motorists to remain in the adjacent lane until just before the connector and cut over at the last minute, resulting in a significant number of rear-end and sideswipe accidents.

What the Work Involves:

To address this issue, the California Department of Transportation (Caltrans) is implementing a new solution never attempted anywhere else in the state, which is to create a "Dynamic" lane at the connector by using the adjacent lane as a connector during peak hours and allowing it to function as a through-lane on SR-110 during general hours.

During the initial phase, which is beginning in mid-January, 2010 the system will be automatically activated 3 p.m. and 7 p.m. on weekdays only. After that phase, the system will be activated based on real-time traffic demand.

Three Extinguishable Message Signs (EMS) in series will be used to manage the system. The first will be installed around the Hill Street on-ramp, before the first tunnel; subsequent EMS will be installed before the second and fourth tunnels. An electronic lane assignment sign where the two freeways split off also will assist motorists in choosing the correct lane.

As part of this system, lighted pavement markers, or Smart-stud systems, will be used to guide and enforce the use of lane Number 2 as an optional lane. The Smart-studs will be placed between lane Number 1 and lane Number 2 as delineators. During peak hours, the lighted pavement markers will be turned off, thus allowing motorists to use lane Number 2 as an optional lane for the northbound SR-110 mainline or to the northbound I-5 connector. During all other hours, lighted pavement markers will be turned on, displaying a continuous light between lane Number 1 and lane Number 2. Near the connector, the lighted pavement markers are installed so closely that, when lighted, they will mimic a solid white line, prohibiting motorists from using lane Number 2 as an optional SR-110 lane.

Features:

Smart-stud is a road marker guidance system that is highly visible in any weather or roadway condition. Each Smart-stud is lit with ten or 20 high-intensity LED lights, visible from up to 500 meters away. Smart-studs are inductively powered and therefore have no direct wire connections. They are cost effective to install and run, as well as highly durable even in the heaviest traffic conditions.

Lighted pavement markers and the EMS will work in conjunction so that when pavement markers are turned off, the EMS will be turned on to allow motorists to use lane Number 2 as an optional lane, and vice versa.

Benefits:

Due to the geography of the connector, it cannot be reconfigured or widened. Having an optional second lane second lane increases capacity and thereby improves safety and traffic flow.

Costs:

\$3 million

Project Contact:

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